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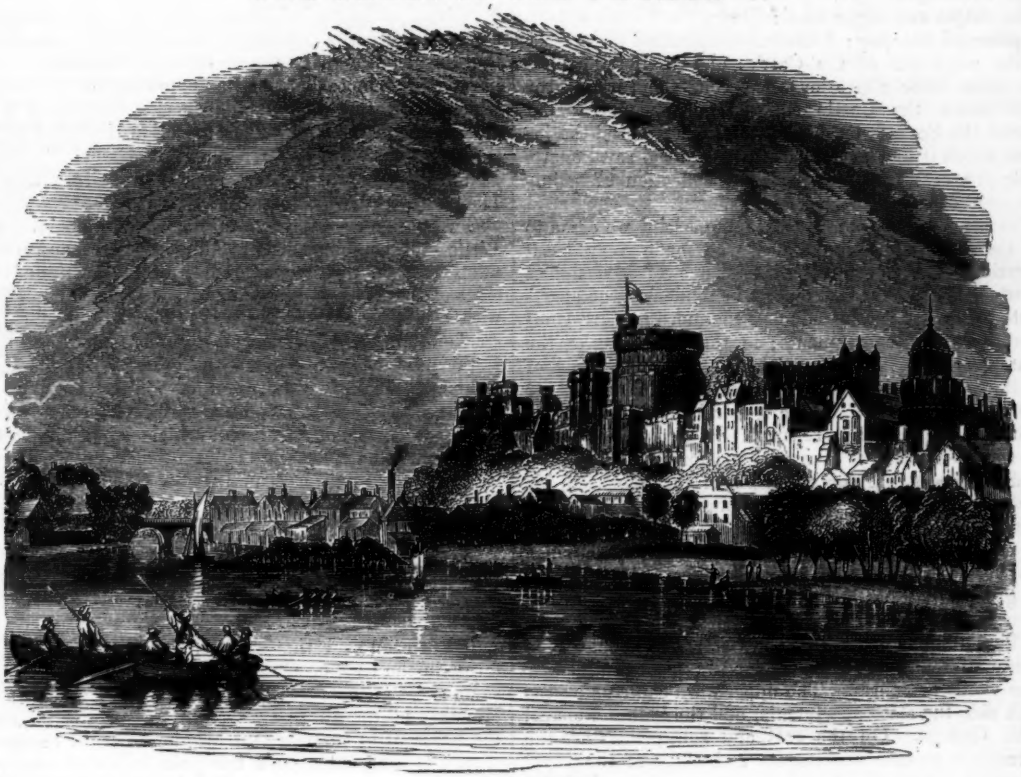
THE BANKS OF THE THAMES. V.



WINDSOR CASTLE.

Here hills and vales, the woodland and the plain,
Here earth and water seem to strive again;
Not chaos-like together crushed and bruised,
But, as the world, harmoniously confused
Where order in variety we see,
And where, though all things differ, all agree.
Here waving groves and checquered scene display,
And part admit, and part exclude the day;
There interspersed in lawns and opening glades,
Thin trees arise that shun each others' shades.
Here in full light the russet plains extend;
There wrapt in clouds the bluish hills ascend:
Even the wild heath displays her purple dyes,
And midst the desert fruitful fields arise,
That crowned with tufted trees and springing corn,
Like verdant isles the sable waste adorn.
Let India boast her plants, nor envy we
The weeping amber or the balmy tree,
While by our oaks the precious loads are borne,
And realms commanded which those trees adorn.—Pope.

When Mr. Ireland wrote his description of the Thames, nearly half a century ago, he said, "Were I to fix on a spot for a picture, it should be at turning the bend of the river at Clewer, when by the evening sun the parts are so beautifully discriminated, and so happily massed by the shadows, as to form a splendid object, in which beauty and dignity are equally combined." How far the progress of building during the last fifty years may have lessened the picturesque beauty of the scene, would perhaps be estimated differently by different persons; but there can be no doubt that the view of Windsor Castle, and other places near Clewer, is one of the most interesting which the banks of the Thames afford. The whole neighbourhood teems with associations: Windsor Castle, the residence of so many sovereigns; Eton, with its distinguished seminary; Datchet Meads, and Herne's Oak, with their Shaksperian associations; all arrest the attention of the Thames tourist at this spot.

The Thames passes between Windsor and Eton, having the former town on the south bank, and the latter on the north. The town of Windsor has frequently the additional epithet of "New" attached to it, to distinguish it from Old Windsor, a village a mile or two distant. Like many other towns in England, it seems to have owed its origin to the castle built near it.

The Castle was commenced by William the Conqueror, who chose the summit of a lofty hill for the site, partly as a matter of security, and partly for the pleasantness of the situation. He enclosed parks, made large forests for hunting, and enacted laws for the preservation of game. Henry the First added a chapel and other apartments, as well as walls and ramparts. This monarch, as well as John, and the first two Edwards, made Windsor a frequent place of residence. Edward the Third pulled down nearly the whole of the Castle, and erected the greater part of the present splendid structure. The work was accomplished under the direction of William of Wykeham, afterwards Bishop of Winchester, and one of the most able architects of his time. He received *seven shillings per week* as his professional emolument,—a large sum in those days. It is said that he was on the brink of disgrace by having cut in a stone

of the new building the words, "This made Wykeham," a sentence capable of a double meaning, but which he explained as intended to imply that the castle was the making of his fortune. St. George's Chapel was begun by Edward the Third, and finished by Edward the Fourth, who was buried there, and whose remains were found in 1789, in a coffin beneath his monument.

Nearly all the successive monarchs down to the time of Elizabeth made some additions or improvements to the Castle; and indeed the same may be said of subsequent sovereigns. Henry the Seventh made additions to the chapel and upper ward; Henry the Eighth rebuilt the principal gateway; Elizabeth constructed the terrace on the north side of the Castle; and Charles the First also made some alterations. During the fury of the Republicans, the Castle suffered much damage; but Charles the Second, on his restoration, repaired the injuries which it had sustained, furnished the royal apartments in a costly manner, formed a collection of paintings, and also a magazine of arms.

Passing over the intermediate monarchs, we come to the time of George the Third, who made very great alterations under the superintendence of Mr. James Wyatt. These consisted chiefly in rendering the apartments habitable, and introducing the more modern comforts into their arrangements; in the rebuilding of the great staircase; the restoration of the pointed style of architecture, which Charles the Second had displaced for others inconsistent with the general character of the building; the thorough repair of St. George's Chapel; and the preparation of a mausoleum for his Majesty and his descendants. After the death of that monarch, his successor George the Fourth planned other and still more extensive changes, upon which Sir Jeffry Wyatville was engaged throughout the king's reign. Even since that period, considerable alterations have been made, and great outlay has been incurred in making the palace fit for the residence of the sovereign of a great country.

The buildings composing the Castle are about a mile in circumference, and are contained in or surrounded by three wards or courts. The upper ward contains on the north side the state apartments, and the hall and chapel of St. George. On the east and south sides are the sovereign's private apartments and those of the royal household. The old principal gateway, being low and inconvenient, was replaced by a new one, of noble and imposing appearance, opposite to the grand entrance of the state apartments, and directly in a line with the Long Walk in the Great Park, which thus forms a magnificent avenue in the approach to the Castle. On either side of the gateway is a tower, one called York and the other Lancaster tower. Around the south and east sides of the court runs a fine corridor, more than five hundred feet in length, forming a medium of communication between the different buildings and apartments which surround it.

As we cannot attempt in this place to describe the state apartments which surround the upper ward, we shall pass to the lower ward. This is much more spacious than the other, and is divided into two parts by St. George's Chapel, behind which are the residences of the dean and canons. The apartments of the minor canons, clerks, and other ecclesiastical officers, are situated at the west end of the chapel, in what are termed the Horseshoe Cloisters. The collegiate chapel of St. George, considered as an ecclesiastical establishment, consists of a dean, twelve canons, seven minor canons, thirteen lay clerks, ten choristers, a steward, a treasurer, and inferior officers. Various towers, appropriated to different purposes, occupy portions of the buildings surrounding the lower ward.

The middle ward is occupied almost solely by the celebrated Keep, or Round Tower, the most conspicuous object in the Castle. It contains the apartments of the constable or governor of the Castle, who has the command of the Castle, its garrison, and magazine of arms, holds a court of record, and is judge of the pleas between parties within the precincts of Windsor Forest. In ancient times the custody of distinguished state prisoners was committed to his care. John, king of France, David, king of Scotland, the Earl of Surrey, the Earl of Lauderdale, the Earl of Lindsay, and the Marshal de Belleisle, are among the distinguished men who were at different periods confined in this keep. In the view enjoyed from the battlements of this tower, the windings of the Thames, with the succession of villages, mansions, and detached farm-houses, the luxuriant landscape of the parks and forest, the bird's-eye prospect of the town, and a vast tract of country extending to the hills in the remote distance, combine to form a panorama which, for beauty and magnificence, is considered to be almost unequalled. Twelve counties are included within the range of view, viz.: Middlesex, Essex, Hertford, Bedford, Buckingham, Berkshire, Oxfordshire, Wiltshire, Hampshire, Surrey, Sussex, and Kent.

Two parks are attached to the royal domain. The Little Park contains about five hundred acres, and is four miles in circumference, extending on the north and east sides of the Castle to the river Thames. It was enclosed with a brick wall by William the Third, and is chiefly stocked with sheep, cattle, and a small herd of red deer. In this park, which abounds with hares, George the Third frequently took the diversion of coursing; and on the south-east side of it stood a venerable tree, known by the name of Herne's Oak, and which, according to tradition, was the identical tree mentioned by Shakspere. "Master Page" informs us that

> There is an old tale goes, that Herne the hunter,
> Some time a keeper here in Windsor Forest,
> Doth all the winter time, at still midnight,
> Walk round about an oak with great ragged horns,
> And there he blasts the tree, and takes the cattle,
> And makes milch-kine yield blood, and shakes a chain,
> In a most hideous and dreadful manner.

It has been said that Herne, who was keeper of the forest in the time of Queen Elizabeth, having committed some great offence, was hung on this tree; and that the credulity of the times easily worked on the minds of the ignorant to suppose that his ghost should haunt the spot. It was cut down a few years ago, and converted into various little articles of furniture and ornament, as Shaksperian relics. Frogmore Lodge, formerly belonging to Queen Charlotte, and afterwards the property and residence of the Princess Augusta Sophia, is separated from the Little Park only by the London road.

The Great Park adjoins the south side of the town. At one time it consisted of four thousand acres, and was fourteen miles in circumference; but King George the Third set apart about half of it, for the formation of experimental farms, and other purposes connected with agriculture. The scenery of this park, which is stocked with several thousand heads of deer, is both varied and picturesque. It is intersected by several roads, the principal of which, known as the Long Walk, skirted by an avenue of majestic trees, commences at the new entrance gateway of the upper ward, and extending nearly three miles in length, terminates at the summit of a bold rise, commanding a superb view of the Castle, Eton College on the other side of the river, and the country beyond them. At various parts of the park have been erected lodges or cottages, as retired summer residences for different members of the royal family; among which were the Royal Lodge and Cumberland Lodge. One of the rides in the park forms the principal approach to Virginia Water, a beautiful lake at the southern extremity of the park, and terminating at a fanciful building called the fishing temple. This spot was a favourite resort of his Majesty George the Fourth; and was by him adorned with miniature frigates and pleasure boats. Several bridges, one of them with a single arch of a hundred and sixty-five feet span, cross this fine piece of

water, which, near the road to Basingstoke, forms a beautiful cascade, and then flows on in a stream that winds through the western part of Surrey, and falls into the Thames near Chertsey.

To enumerate the various points of interest and attraction presented by Windsor Castle, would be wholly out of place in a series of articles such as the present; we must therefore proceed onward in our tour. Passing under Windsor Bridge, and along the margin of the playing fields of Eton College, the bend of the Thames presents a fine view of the north front of Windsor Castle. Winding round the Little Park, the river pursues its course to Datchet, a pretty village on the northern shore; at a short distance from which is Ditton Park, the residence of Lord Montagu. The original mansion, a venerable structure which had been enlarged at various times since its first erection in the reign of Edward the Third, was destroyed by fire in 1812. On its site has been built, from the designs of Mr. Atkinson, a handsome castellated edifice, with turrets and battlements, surrounded by a moat, and having its principal entrance defended by an embattled gateway, flanked with towers. A drawbridge crossing the moat, connects the house and grounds with the park.

On the opposite bank of the river soon appears Old Windsor, which has been termed a "village of villas." Near the margin of the river is situated Old Windsor Manor House, partly surrounded by a moat, and exhibiting on the water-front the appearance of an ancient manorial edifice. But the most conspicuous object at Old Windsor is Beaumont Lodge, built a few years ago on the site of an older structure erected in the early part of the last century. The mansion is remarkable as presenting a specimen of what has been termed a new style of architecture, viz. the British. The principal front is of considerable elevation; its chief feature is a corridor consisting of coupled columns, or rather columns in imitation of twin trees growing from one root; between the stems is introduced the shield of a knight; and the capitals are formed after the caps worn by the Knights of the Garter, the star of the order forming a centre; and the whole is finished with Ionic volutes, and emblematic figures of the arms of England. The metopes are ornamented by the George and Collar; the decorations of the frieze over the columns are composed of ostrich feathers, tied with ribbons and blended with acorns; while the continued frieze is made up of naval and military trophies. This attempt to form a national style of architecture was made by a Mr. Emlyn of Windsor; but it does not appear to have met with encouragement.

THE OIL-BEETLE AND THE BLISTERING-BEETLE.

The genus of coleopterous insects, named Meloe by Linnæus, belonging to the section Heteromera and the family Cantharidæ, includes some very remarkable insects, which may be generally described as having the body large and distended, the wings entirely wanting, and the elytra short, oval, and folding partially over each other at the base: the antennæ are eleven-jointed, of nearly equal thickness throughout, or dilated and knotted in a singular manner, or elbowed in the centre, especially in the males. The body is generally of a deep black, bordering in many species on bluish and violet, and very much punctuated. These insects are of a comparatively large size: they are very inactive, crawling sluggishly upon the ground, in the fields, tilled lands, on the edges of highways, or among low herbage upon which they feed; but they seem to prefer sandy or calcareous places exposed to the sun. When seized or disturbed they emit, from the articulations of each knee of their legs, a viscous fluid, similar to oil, of a yellow colour and disagreeable odour. This oil was once highly celebrated for its supposed efficacy in rheumatic pains when used as an embrocation to the parts affected: for this purpose also oil was obtained by crushing the insects in a press. This oil was also used as a specific against madness, and farriers in some cases employed oil in which these insects had been macerated. These insects, of which eight or nine species occur in Britain, are most frequent in spring and autumn, and some of them, especially the type, *Meloe proscarabæus*, are not uncommon. They possess to a certain extent the vesicatory powers of the Cantharides, and are used in some parts of Spain instead of the true blister-fly. The females, when filled with eggs, become greatly dilated, and exceed the males in size. Goëdart preserved a female proscarabæus, and fed it with anemone and ranunculus leaves. Between the 12th of May and the 12th of June it laid 2212 eggs, besides about as many more which were not counted. These eggs were produced at two separate times, the insect depositing the eggs in a hole in the ground, which it had made with the posterior extremity of its belly. These eggs were yellow, and resembled small grains of sand pressed together. The larvæ, according to this observer, have the body long, cylindrical, sprinkled with hairs, composed of eleven rings, almost equal, and with an oval head, furnished with two eyes and two longish antennæ. They have six legs, of rather large size, compared with the body, which is terminated with two long appendages, in the form of silky hairs. Goëdart was not able to rear these larvæ, although he fed them with a variety of animal and vegetable matter. This want of success has attended the efforts of many other entomologists.

These larvæ are supposed by some observers to be parasitical on the bodies of winged insects. Degeer having noticed that a strong resemblance existed between the larvæ of Meloe and a small insect which he found adhering to the body of a fly resembling the humble bee, placed some domestic flies among the larvæ of the Meloe, and found that in less than half an hour a very great number of these larvæ had become attached to the breast and belly of the flies. After some vain efforts to get rid of the larvæ the flies perished on the second or third day, and the larvæ abandoned the body. Having been furnished during many days with living flies, they fastened on them. As soon as a fly passed near them there were always some which directly seized it by the foot or wing, and never quitted their hold until in a favourable situation to attack the body. Degeer found, however, that they did not increase in size, and, neglecting to supply them with victims, they all died.

Other observers have contended that the larvæ spoken of above were not those of the Meloe, but of some other insect; but as the information does not rest upon Degeer's information alone, the early history of the Meloe must be considered as quite unsettled.

The *Meloe vesicatorius* of Linnæus (*Cantharis officinalis* of Geoffroy) is the celebrated blister-fly, or Spanish fly, so much used in medicine. It is distinguished generically by the possession of complete wings and wing-covers, by having the joints of the tarsi entire, and not bilobed, and the thorax nearly ovoid: the body is long and narrow, with the head rather longer than the thorax: the second joint of the antennæ is very small. This insect varies very much in its size, being sometimes not more than half an inch long, while others are twice that length. It is of a rich green and golden colour, very shining, and delicately punctured, with the antennæ (except the first joint) black. It is very rare in this country, but has been seen occasionally near Cheltenham and elsewhere.

The Cantharis is one of those insects which have been most anciently and most universally known. Physicians, who were the first natural philosophers, and the first observers of nature, have made mention of the cantharides in the remotest times. But they have only considered them

under that relation which was most suitable to their own profession, and as furnishing to medicine one of its most powerful agents. The naturalist, who is less anxious about becoming acquainted with the medicinal virtues of the dead, than with the peculiar habits of the living cantharides, is yet very far from having acquired in this respect certain, extensive, and satisfactory information. The only species which has been deemed to be endowed with useful properties has caused a forgetfulness of all the others which compose the entire genus; and all that we know in general respecting these insects is, that in our European climates they live on plants, devour the leaves of certain trees, shun the cold, appear at the commencement of spring, and disappear at the beginning of autumn. We are therefore unable to do any more than present some general ideas respecting the cantharis which is peculiarly consecrated to the purposes of medicine.

It is more than probable that experiments on insects relatively to their utility in medicine and the arts, have been too much neglected in general. Their diminutive size has doubtless caused them to be too much despised. It cannot, however, be doubted that there must be a great number of them whose virtues are at least equal to those of the cantharides, and many others which are less acrid and less caustic, might in many cases be taken internally, with less danger and a greater chance of success. We may rest assured that all the species which belong to the genus *Cantharis* possess pretty nearly the same virtues as the species which is most generally known, and consequently in all the countries in which they are found, the same usage might be made of them. Among the insects taken from other genera, which might furnish caustic and irritating particles, and which might be substituted for the cantharides to a certain extent, we may range *meloe, mylabris, carabus, tenebrio, cicindela, scaribes, coccinella*, &c. The cast skin of the majority of the caterpillars produces a dust, which scattered by the winds, raises pustules on the face with which it comes in contact. The same effect is occasioned by the hair and wool of certain phalenæ when they are touched. Marian found at Surinam some species of the larvæ of lepidoptera, which one could not touch without being suddenly attacked with inflammation.

The early history of this insect is but little known. The female deposits her eggs separately, forming them into an agglutinated mass, and burying them underground. The larvæ have a soft body, of a yellowish white, composed of thirteen rings; the head rounded, somewhat flat, and furnished with two short antennæ: the mouth is provided with two tolerably solid jaws, and four antennulæ. They have six short and scaly feet. They live in the earth and feed on various roots. When they have attained their full growth, they change into the nymph state in the earth, and do not come out of it until they have assumed the perfect insect form.

The cantharides are abundant in Spain and in the south of France, especially in the month of June, when they assemble for the purpose of pairing. This is the time when they must be seized, especially at the hour of sunset or sun-rise, when they are in a somewhat torpid state. They are found upon ash-trees, Tartarian honey-suckles, lilacs, rose-trees, poplars, elms, &c., the leaves of which they devour, and when this sort of food is wanting, they throw themselves upon corn and grass, and commit great damage. As they appear in large troops or swarms, and are accompanied by a very penetrating odour, somewhat similar to that of mice, it is not difficult to discover and collect them, provided certain precautions are adopted which should never be neglected. The odorous particles exhaled by them are so very corrosive, that people have been violently affected whilst gathering them during the heat of the day with bare hands, or even when they have fallen asleep under trees where swarms of them have gathered. The persons who collect them are protected by masks and gloves.

There are two modes of collecting cantharides. The first and most simple consists in spreading under the tree which harbours these insects several cloths on which they are made to fall by shaking or beating the branches. The insects are then gathered on a hair sieve, and held over the vapour of boiling vinegar, which kills them; or they are collected on a linen cloth, which is folded and steeped several times in vinegar and water. This is the method most generally adopted.

The second method is to spread cloths about the tree, and the vapour of vinegar is diffused by causing it to be boiled in earthen pans placed in chafing-dishes. The trees are then shaken to cause the cantharides to fall: they are picked up immediately, and enclosed for twenty-four hours in vessels of wood, earth, or glass.

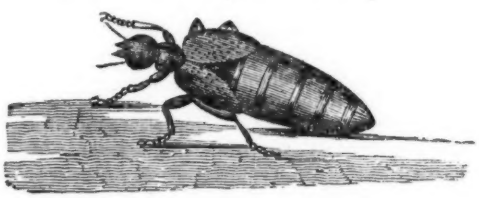
When the insects are dead it is necessary to dry them thoroughly, otherwise they would contract a most detestable odour, and be rendered unfit for medicinal purposes. For this purpose they are exposed to the heat of the sun, or of a stove, or they are placed in a well-aired attic on hurdles covered with linen cloth or paper. They are occasionally stirred about with a stick, or with the hands protected with gloves, for without this precaution the workmen would be exposed to the most painful sensations. When properly dried, the cantharides are so light that fifty of them weigh scarcely a dram.

The insects are preserved in boxes or bands lined with paper, and firmly closed. A part of our supply of cantharides is from Astracan and Sicily: but though bearing the name of Spanish blistering flies, the greatest quantity is obtained from St. Petersburg; and the Russian insects are said to be superior to those from Sicily and France. Cantharides are liable to the attacks of many insects and worms, but as these feed only on the inert part, they do not destroy the vesicant property.

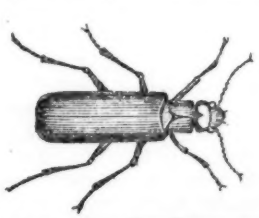
Chemists have subjected cantharides to analysis, and have separated from them a peculiar substance, which is called *cantharadin:* this is the vesicating or blistering principle of the insect. It is a white substance under the form of small crystalline plates; when pure it is insoluble in water; it is soluble in ether, in boiling hot alcohol, and in the fixed oils. Some chemists regard it as a kind of animal camphor.

Cantharides also yield to analysis the following substances:—1. A greenish fluid oil, insoluble in water, but soluble in alcohol. This is inert. 2. A black matter, also inert; it is soluble in alcohol but not in water. 3. A yellow viscid matter soluble both in water and in alcohol. This has no blistering property. 4. A little fatty matter; phosphates of lime and magnesia; acetic and uric acids also occur in cantharides.

The external application of cantharides is made by reducing them to powder, mixing them up with some fatty substance and applying a plaster thus formed to the surface of the body. It immediately begins to act, and detaches the outer skin from the dermis with great rapidity. When given internally it is in the form of an ethereal or alcoholic tincture; but it is a medicine requiring the utmost degree of caution and circumspection in its administration; and the cases in which it is proper to give it as an internal remedy are very few.



Meloe proscarabæus, Linn. THE OIL BEETLE.



Meloe vesicatorius, Linn. THE BLISTERING-BEETLE.

POINTER AND SETTER.

RURAL SPORTS FOR THE MONTHS.

JULY.

The present month is not distinguished for any special employment which can be designated a rural sport: the angler continues to ply his vocation, and we might dwell on many interesting particulars in connection with this sport, but as we have already given a brief outline of his proceedings, and are engaged in a course of articles descriptive of several of the most highly-prized among the inhabitants of our rivers, it appears unnecessary to devote further space to this subject. The approaching season, however, presents so many attractions to the sportsman, and enters so largely into his anticipations of pleasures to come, that we shall not be considered as deviating from our course, if we also look forward to the "Shooting season," and make a few observations on the sagacious and truly interesting animals employed by the shooter to secure the different kinds of game which will shortly become the object of his pursuit.

England has long been celebrated for the superior excellence not only of its horses but of its sporting-dogs. Our grey-hounds, fox-hounds, and harriers are unequalled, and that they are so results from the care which is taken to keep the species distinct. The instinct and the fine olfactory powers of these animals are remarkable; but in the pointer and setter the instinct manifested is still more extraordinary. These latter animals appear to be endowed with their peculiar qualities especially for the service of man, while those of all other animals are calculated for the supply of their own individual wants, as well as being secondarily of importance to the human race.

When the intellectual endowments of the domesticated races of dogs are permitted to weigh in the scale,—when we begin to consider the faculties which the bounty of nature has bestowed upon them,—the sincerity and disinterestedness of their attachment,—the sagacity, strength, velocity, courage, and perfect obedience which they proffer to man,—we cannot refuse them our admiration and affection. To what other species could we look for voluntary association with our fortunes? Which of them would, like the dog, lend us the full use of senses so acute as his? Which can rejoice in our joy, be vigilant and bold in our defence, obedient to order, faithful in our adversity, understand our least words and signs, and die on our graves from pure attachment? These qualities, we all know, dogs possess. Here, then, we find the source of that consideration which is granted them by all men near a state of nature; and although conceded by them with niggardly hands, the wild man of the old world, the stoical hunter of the new, the half-frozen Esquimaux, and the savage of Australia, differ only in their mode of acknowledgment from the expressions of favour with which the drover, the shepherd, the sportsman, and the fine lady of civilized society regard them.

As the dog alone, of all the brute creation, voluntarily associates himself with the condition of man's existence, it is fair to presume also that he was the first, and therefore the oldest of man's companions; that to his manifold good qualities the first hunters were indebted for their conquest and subjugation of other species. We do even now perceive, notwithstanding the advance of human reason and the progress of invention, that in a thousand instances we cannot dispense with his assistance.—Lieut.-Col. Smith.

Doubtless it required, at first, a long course of patient education and careful management to produce even a distant approach to the perfection of the present breed of pointers; but certain it is that an instinct favourable to "pointing" must have existed in this race of dogs in particular, for of no other animal can it be said, that with proper training he would form a substitute for the true pointer.

The pointer was originally a native of Spain; and among our English breed, such dogs as have the most Spanish blood in their veins are esteemed the best. The Spanish pointer is about twenty-one inches in height. He has a large head, is heavily made, broad-chested, stout-limbed, with a large dew-lap; his eyes are full and widely separated, and his nose broad; his tail is straight, short and thick, and his ears large, pendulous, and fine; the finest dogs have a round and not a flat foot. When pointing, he raises one of the fore-legs, and stands on three only, with his face and tail in a line with his back. This is the position he always assumes when he comes gradually upon the scent; but whenever, by running with the wind, or any other circumstance, he comes suddenly upon game, he will stand in the most extraordinary

attitude, and will have, sometimes a very picturesque, sometimes a very grotesque appearance. The disposition to stand at the sight of game is manifested even by puppies of this breed, and is a remarkable instance of the transmission of propensities, which are undoubtedly in part acquired. And when a dog of this breed is incapacitated through age from maintaining his "point" in the natural posture, he will sit down on his haunches with his face towards the game, turning his head occasionally to see whether the gun be approaching.

Notwithstanding the acknowledged excellence of British pointers, it is frequently lamented by true sportsmen, that there is not the same care taken to keep the species distinct as in the case of hounds, and in consequence that the number is comparatively few where the qualities of that race remain unmixed with those of other dogs. Many dogs, esteemed by their owners as first-rate, are found to bear little resemblance in point of shape and appearance to the true pointer, and if, as it is maintained by high authority in the sporting world, the instinct of pointing be an inextinguishable and indestructible principle in the blood of the pointer, and that the further any dog is removed from the original Spanish pointer the worse the dog is, then such dogs, however they may be improved as to beauty of form, will necessarily possess a commixture of qualities rendering them inferior to the original breed.

The trouble in training mongrel dogs is double that of true pointers. The usual price paid for "breaking a dog," as it is termed, is from two to five guineas. Much of the future usefulness of the dog depends on the temper and judgment of the person employed in educating him. To give our uninitiated readers a specimen of the shooter's vocabulary we quote a list of some of the words made use of by the breakers and sportsmen to the dogs.

"*To-ho*" spoken in an under-tone, when the dog is ranging, is a warning to him that he is close upon the game, and is a direction to him to stand. There is no necessity for using it to a dog that knows his business. Spoken in a peremptory manner it is used to make the dog crouch when he has flushed game, or been otherwise in fault. "*Down-charge*," or "*down-to-charge*," is used to make the dog, whether it be near or at a distance, to crouch when the shooter charges, that the dog may not flush game when the shooter is unprepared. When the dog will not crouch, but continues beating, the leg-strap may be put on. "*Take heed*," and "*Be careful*," are used when the dog ranges over ground where it is customary to find birds. "*Take heed*" is a word of correction; "*Be careful*," of encouragement. The former is used by way of caution or notice to prevent the dog flushing birds by running over the ground too fast; the latter is likewise a caution, but used when the dogs beat slowly or carelessly. "*Ware fence*" is used to prevent dogs passing a fence before the gun. The dog should never, on any account, leave an inclosure until his master has left it. "*Ware*," or "*Beware*," is used to rate a dog for giving chace to a hare, birds, or cattle, pointing larks, or approaching too near the heels of a horse. "*Seek*" is the direction to the dog to look for a dead, or wounded bird, hare, or rabbit. "*Dead*" is used to make a dog relinquish his hold of dead or wounded game.—*Oakleigh Shooting Code.*

The *Setter* is endowed with sagacity and intelligence equal to that of the pointer, but is reckoned inferior in fineness of scent, and is less staunch. It partakes of the character of the pointer and spaniel, from which it has most probably descended. The setter will face briars and gorse bushes, and also delight in water, in which respects it has the advantage of the pointer who shows a repugnance to them; thus the setter is preferred on marshes for snipe shooting, and also in heavy covers; while the pointer is far superior on open ground, and will endure the greatest share of fatigue.

The disposition of the setter is mild and gentle, and it shows much attachment and gratitude towards a kind master. In colour it is in general white, with large spots or blotches of liver colour or red. The hair is not so smooth as that of the pointer, but possesses the wavy character of the spaniel's; the ears also resemble those of the latter animal. Mr. Bell gives an interesting account of one of these animals as to its domestic qualities. It was a setter bitch, which, although not regularly trained, was an excellent dog in the field. The animal appeared to be always on the watch to evince love and gratitude to those who were kind to her, and the instinct of attachment was in her so powerful that it showed itself in her conduct towards other animals as well as to her human friends. A kitten lately taken from its mother, was brought up with the dog, and at first showed all the usual horror on the approach of its companion. But Juno seemed determined to conquer the antipathy, and by the most winning and persevering kindness and forbearance—advancing and receding as she found the waywardness of her new friend's temper required—she completely attached the kitten to her; and as she had lately lost her puppies, and still had some milk left, the pair were often seen lying together before the fire, the kitten sucking her kind foster-mother, who was licking and caressing her as her own offspring. On another occasion when a Spaniel bitch had puppies, of which all, excepting one, were destroyed, Juno would take every opportunity to steal the remaining one from its mother's nest, and carry it to her own, where she would lick and fondle it with the greatest tenderness. The mother, also a good-tempered creature, as soon as she had discovered the theft, hastened, of course, to bring back the little one, which was again to be stolen on the first favourable opportunity; until, at length, the two bitches killed the poor puppy between them as they were endeavouring each to pull it from the other; and all this with the most perfect mutual good understanding.

Such anecdotes might be multiplied with respect to the next species of sporting-dog we have to notice, *i.e.*, the *Spaniel*, for of all dogs, this is perhaps the most affectionate in its nature, the most grateful for kindness, and the most patient in enduring ill-treatment. The spaniel is the best dog for beating covers, provided he can be kept near the gun. He is generally expected to give tongue when game is flushed; some spaniels will give notice of the game before it springs, which is not amiss where wood-cocks only are expected to be found; but wood-cock and pheasant shooting are usually combined, and the latter sport cannot be conducted too quietly. Whatever the species of game may be spaniels are the best dogs, where the cover is so thick that the shooter cannot keep his eye upon the dogs.

The dogs called *Retrievers*, are those employed to find lost birds. Newfoundland dogs are reckoned the best for this purpose. A good retriever has a very fine sense of smelling, and is as sure to follow the track of the wounded bird, on whose scent he is first put, as a blood-hound that of a human being or deer.

SCIENCE has scattered her material benefits so lavishly wherever she has been in presence, that no small number of her followers—and all the multitude—have left off gazing on the resplendency of her countenance in their eager scramble for her gifts. From those who frequent her courts with such views, she veils her brightness and withdraws her spirit, leaving them to grovel, poring like Mammon on the golden pavements of her mansion, while their ears are deaf to its celestial harmonies, and their mouths closed to its breathings of paradise.—*Quarterly Review.*

I KNOW that eastern winds have power
To nip the young and tender flower;
Clouds may obscure the rising day,
And its young glories fade away:
And so, my hopes may meet with blight,
My early days seem dark as night;
Blessings may leave me one by one,
And yet I shall not be alone.
God will be with me, and his love,
Through weary years of care, will prove
Amid the desert one green spot,
One hope that still deceiveth not

BEET-ROOT SUGAR.

II. The Early Modes of Producing Sugar from the Beet.

In our last article on this subject, we briefly enumerated the different kinds of *Beta*, or Beet-root, and also the mode which had been recommended for the cultivation of those varieties of the root which abound most in saccharine matter. We now proceed to notice the process of obtaining the juice from the root, and of converting it into sugar. The researches detailed in the last paper were chiefly those of M. Achard; but the method of obtaining the sugar, which we shall describe, is that adopted by Professor Gottling, as being rather more easy in practice than that of Achard.

Gottling recommends the roots to be taken out of the ground about the end of September or the beginning of October, in order to have good weather for drying them. They should be well washed as speedily as possible, and their small fibres should at the same time be cut off; as likewise such part of the root as in growing had risen above the surface of the earth. The roots are to be afterwards wiped with a cloth, and laid upon a dry floor; their heads are to be cut off and given to the cattle; and the roots should be then sliced lengthwise down the middle, each half again cut into thin slices, and loosely hung upon strong thread upon nails, in an airy chamber or place sheltered from rain. The slices should not be placed too near together, lest they spoil, nor too many be put upon one string; it is advisable to turn the strings upside down once or twice, to effect a speedier drying. In the course of ten or twelve days they become so dry that the strings may be removed nearer together, in order to allow fresh roots to be hung up, if there should be scarcity of room. Instead of placing the sliced roots upon strings, stages may be made in outbuildings; and the slices may be laid on netted frames. If the drying season be far advanced, or a frost be expected, the beet-roots should not be exposed to the external air, but should be dried in a warm room on strings or netted frames, resembling the flakes formerly used in Yorkshire for drying oat-cakes.

The slicing of the beet-root may conveniently form an evening occupation; and no more should be sliced at once than can be strung or placed on frames to dry, as it is not advisable to let the roots remain in slices long in a heap. The roots may be dried in stove-rooms by artificial heat; but great care is in that case required to keep them free from being smoked or burned, as the sugar would hence become dark-coloured, and of an unpleasant flavour. It is better therefore not to dry the roots by means of stoves, unless in case of necessity, such as where the frost may prevent the roots from being dried in the open air. Where opportunity will not permit the beet-roots to be sliced soon after being taken out of the earth, they should be placed in cellars and covered with straw, or put into holes in dry sandy earth, and preserved till wanted.

The roots should be dried throughout, and not partially. If they appear grey on the outside, they should be white or red on the inside; and, if chewed between the teeth, they should have a very sweet taste, free from must or acidity. When dry, the roots are ready to have the sugar extracted; and, to effect this, it is necessary to provide three wide but shallow wooden tubs, made of oak, ash, willow, or some other non-resinous wood. Each tub should have a cock or spigot near the bottom, and should be placed at such a height from the ground that a smaller vessel may stand beneath it, to receive the liquor when drawn off. The three vessels are thus placed near each other, in a place where the temperature is about 52° Fahr.; and where good clear water may conveniently be pumped into the upper vessels.

The dried slices of beet-root, after being sifted from dust and loose fibres, are put into one of the upper tubs. Clear cold water is then poured on the roots, to about one-third in height above them. After the beet has been thus steeping for three hours, being stirred at intervals with a wooden paddle, the second tub is supplied with about as much beet as had been put into the first; and the sweet liquor from the first tub, is drawn into the vessel underneath, and poured upon this second. Sufficient clear water is then put into the first tub to cover the beet; and the beet in both tubs is stirred occasionally for another period of three hours. The liquor in the second tub, which, if the beet were of the proper kind, would now be very sweet and of an agreeable red colour, is drawn off, and filtered through a sieve or flannel, into the vessel beneath.

After this, the second supply of liquor is drawn from the first tub, and poured into the second; more fresh water is poured on the first tub; and both are left to steep for three hours, as before. Then the third tub is brought into requisition in the same way as the other two, by putting into it an equal quantity of dry beet, to which is added the liquor from the second tub. After which, the liquor from the first tub is removed to the second; and the beet in the first tub, being now deprived of saccharine matter, may be used for feeding hogs or cattle.

When another period of three hours has elapsed, the liquor is drawn from the third tub, by filtering as before; and the liquid from the second vessel is poured into the third. Another supply of fresh water is poured into the second vessel, and is allowed to remain three hours, being stirred occasionally. During this time the first tub is cleansed, and a new supply of beet is put into it. This goes through the same routine of processes as before; and thus the operations continue until the saccharine matter has been obtained from all the beet. It will be seen that this apparently circuitous employment of the three tubs, and the interchange from one to another, is for the purpose of obtaining all the saccharine matter from the beet, without loss; but it will not be necessary to trace the steps further. The spent roots having been given as food to cattle, and the juice being ready for boiling into sugar, the operations proceed as follow.

The extracted saccharine liquor is boiled down to the consistence of syrup; then put into a copper, and boiled over a moderate fire until that degree of thickness is obtained that a phial which holds one ounce of water will contain eleven drachms of the syrup. As the scum or froth rises, it must be carefully taken off. When the syrup is brought to the desired consistence the fire must be removed from the copper, and the syrup gradually poured through a thin woollen cloth, placed over a wooden or stone vessel. The syrup must not cool too much before thus filtered, otherwise it becomes "ropy."

When the filtered syrup is somewhat cool, it is laded into shallow wooden or stone vessels to crystallize; vessels made of tin, and also shallow earthen vessels, such as are used to produce cream, may however be adopted for this purpose. The vessels, filled with syrup, are placed in a room heated to about 70°; and care is taken to keep the syrup clear from flies and dust. If the syrup has been of a proper consistence, crystals will soon begin to form at the bottom of the vessels; and in the space of eighteen or twenty days, the crystallization will be completed. The mass must then be put into a strong linen sack, well secured, and placed under a press to squeeze out the liquid from the sugar which remains in the bag; a cheese-press or long lever will serve for the purpose of pressure. The liquid matter may be set to crystallize a second, and even a third time, and will yield sugar of a coarser quality.

The sugar first obtained may be rendered purer by well mixing therewith a small quantity of clear spring-water, and placing it again under the press; the coloured syrup will then run out, and leave the sugar in the bag

in a much purer state than before. By repeating the operation the sugar becomes so far improved, that it assumes, when dried and rubbed, the state of a fine white powder. The separated syrups being again carefully boiled, more sugar will be obtained from them by crystallization.

If the sugar produced by the first pressure be dissolved in as much clear water as will form a syrup, and placed again in a warm room to crystallize, it will yield a much purer and harder sugar. The syrup may then be separated without pressure from the sugar, merely by inclining the vessel, and allowing the syrup to run off from the crystals. The remaining thick syrups may be used as treacle or molasses, and will serve the purposes of the distiller.

Such is the process which Professor Gottling suggested for the preparation of beet-root sugar, and which was first made known in England by Mr John Taylor. We may here follow up these details by a notice of the constituent elements of beet-root, as determined by Professor Lampadius, of Freyberg.

Beet-root contains or consists of water, fibrous matter, sugar, mucilage, albumen, starch, and three substances which, for want of better names, are termed the colouring, the odoriferous, and the bitter principles. The following very interesting train of experiments was made by Professor Lampadius, with a view of determining what substances he could obtain from one-hundred and ten pounds of the white beet-root, the *Beta cicla* of Linnæus. The beet, when washed, peeled, cleaned, and grated, gave a mass weighing eighty-seven pounds; out of which were pressed forty-one pounds and a half of juice. This juice was boiled with twenty ounces and a half of charcoal powder; by which it was made to yield, when filtered and evaporated down until crystallized, five pounds of a brownish-yellow grained sugar, and five ounces of brown syrup. This brown sugar, after being dissolved in six pounds of lime water, mixed with one pound of blood, was boiled, filtered, and evaporated; from which resulted four pounds five ounces and a half of purified brown sugar, and six ounces and a half of syrup. The purified sugar thus produced, was then dissolved in six pounds of lime water, mixed with one pound of milk, and boiled for a quarter of an hour; during the boiling a small quantity of white wine vinegar and a little more milk were added; the saccharine matter was filtered and treated as before; and the product was four pounds of well-grained white powder sugar. The residuum after pressure, the brown syrups of the first two processes, and the remains of the filtrations, weighed, when collected, forty pounds. They were then mixed with one quart of yeast and eighty quarts of water, heated to 112° Fahr.; and, after fermenting forty-eight hours, were distilled. They furnished, at the first distillation, fifteen quarts of weak spirit, which, on a second distillation, gave eight quarts of a better spirit; from which, when rectified, were produced three quarts and a half of spirits resembling rum.

We must beg the reader to bear in mind, that the foregoing details give a view of what had been done by Margrat, Achard, and Gottling, at various periods preceding the commencement of the present century. In the next paper on this subject, we shall detail the circumstances under which, and the mode in which, the French government took advantage of these experiments, in encouraging the cultivation of the beet-root in that country.

THE study of nature requires two qualifications of the mind, which at first sight appear to be opposed to each other:—the comprehensive view of a bold genius that embraces the whole, and the minute and careful inspection of an unwearied industry that lives upon the smallest objects. —BUFFON.

BIRTHDAY LINES.

THOU wakest from rosy sleep to play,
With bounding heart, my boy!
Before thee lies a long bright day
Of summer and of joy.

Yet, ere the cares of life lie dim
On thy young spirit's wings,
Now, in thy morn, forget not Him
From whom each pure thought springs.

And then, my child, in future years,
Wherever thy path may be,
When strength is gone, or grief appears,
He will remember thee!—Mrs. HEMANS.

IT would be easy to produce from the writings of Infidels many testimonies to the excellence of Christianity. Bolingbroke affirms, that if Christianity has been a human invention, it is the most amiable invention that ever was imposed on mankind for their good; that it contains a most simple and intelligible rule of belief, worship, and manners; and that the Gospel is one continued lesson of the strictest morality, of justice, of benevolence, and of universal charity.

IT is no unusual thing for men of the most abandoned character to be struck with profound awe, and restrained from their vile purposes, by the presence of an eminently pious person. There is a power in real godliness, which commands the reverence of those who hate it; and this the proudest sinners often so far feel, as to be unable to carry on their violent opposition against it, while yet no saving change is effected upon them.—ROBINSON.

THE human body considered simply as an engine to be worked by a superior agent—as a system of combined and organized matter, to be actuated and controlled by a living spirit, is a most wonderful instance of creative power and plastic skill. It may be considered as a world in miniature, as an epitome of all the sciences, as an abridgment of the great book of nature. To whatever part of it we direct our attention, we discover a most remarkable exemplification of the general laws of physics. In its optics, as expressive of the functions of the eye, we have mathematics of the highest order. In the formation of the bones, and in the arrangement of its various joints and ligaments, we have the principles of mechanics most strikingly exhibited to our view. In the circulation of its fluids, the heart, the arteries, and the veins, may be regarded as an hydraulic apparatus. The process of respiration is an example of pneumatic action. In the gradual formation of its general substance—in the precipitation of the various elements which constitute its specific parts, we have chemistry in some of its finest and most beautiful combinations. Over and above all these subordinate agencies, however, there is a master principle—there is life, the grand chemist, the mighty engineer, who superintends and regulates the whole. And although he is invisible to the keenest eye, and baffles the strongest microscope, the effects which he works are too palpable to admit a rational doubt of his separate and distinct existence, and the very obscurity of his retreat tends only to raise our admiration of the power and wisdom of that Being, by whom he was originally created, and by whose will he has been attached to our frame. Truly then may we say in the view of this mysterious union of body and soul—of matter and spirit in the present condition of our nature, that we are "fearfully and wonderfully made." This is therefore doubtless the just and legitimate method of studying the science of physiology—to regard it as exhibiting throughout a most remarkable illustration of the "manifold wisdom of God." So forcibly was the celebrated heathen philosopher and physician, Galen, struck with this fact, that he remarked, that if there was no other proof of it, the examination of the human eye alone would be sufficient to demonstrate the existence of a Supreme Being.—DAVIES'S *Handmaid*.

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